Nursing Genius JOURNAL
ORIGINAL RESEARCH

Volume 2, No.3, 30 July, 2025 (Page 92-104)
eISSN:3047-230X, pISSN: 3046-854X
https://journal.nursinggeniuscare.co.id

The Role of First-Time Maternal Pregnancy in Neonatal Low Birth Weight: Evidence from RSUD Toto Kabila's NICU

[1*]Ferawaty NauE, [2]Sri Andriani Ibrahim, [3]Rini Wahyuni Mohammad

Affiliation
[1-3]Gorontalo State University, Indonesia

Article Info

Article History:
Received: 09 Juny 2025
Revised: 24 Juny 2025
Accepted:01 July 2025

Keywords:
Primigravida, Low birth Weight, Hospital

Corresponding Author:
Ferawaty NauE
Gorontalo State University, Indonesia

Email:
fhena1993@gmail.com

Abstract

Background: Based on data from the Gorontalo Provincial Health Office in 2023, the number of LBW babies was 1,285 out of 18,724 births. LBW is caused by several factors, including the mother's age during pregnancy, primigravida status, the mother's gestational age at delivery, anemia in pregnant women, intrauterine growth restriction, and the number of antenatal care (ANC) visits.

Purpose: The purpose of this study was to determine the relationship between primigravida and low birth weight (LBW) in the NICU of Toto Kabila Regional General Hospital in Bone Bolango Regency.

Methods: This study design uses a correlational research design, which aims to analyze the relationship between two or more variables without attempting to determine their influence. The sampling technique used in this study is simple random sampling, with a sample size of 113 newborns delivered by cesarean section with a history of primigravida pregnancy in the NICU of Toto Kabila Regional General Hospital. The statistical analysis used is the Kolmogorov-Smirnov test.

Results: The results of the study obtained a p-value of 0.273 > 0.05, meaning that there is no relationship between primigravida and the incidence of LBW in the NICU room of Toto Kabila Regional General Hospital, Bone Bolango Regency.

Conclusion:It is hoped that this can serve as information and a solution to improve the quality and standard of NICU services in reducing the incidence of LBW.

Background

Globally, 2.4 million babies died in their first month of life (in 2020), with approximately 6,500 deaths per day among newborns (WHO, 2022). In Indonesia, the neonatal mortality rate (NMR) stands at 9.30 per 1,000 live births, meaning that 9–10 infants die before reaching one month of age (Indonesian Central Statistics Agency, 2023). The number of infant deaths during the neonatal period (0–28 days) increased from 21,447 cases in 2022 to 27,530 cases in 2023 (Ministry of Health of the Republic of Indonesia, 2023). These results indicate a significant increase and the failure to achieve the target reduction in the IMR for 2024, which is 16 deaths per 1,000 live births, and 12 deaths per 1,000 live births by 2030.

According to the 2023 Indonesia Health Profile, the main causes of significant mortality during the neonatal period include respiratory and cardiovascular conditions (1%), severe low birth weight (LBW) with a percentage of 0.7%, congenital anomalies (0.3%), infections (0.3%), neurological disorders, central nervous system disorders (0.2%), intrapartum complications (0.2%), unknown causes (14.5%), and others (82.8%) (Ministry of Health of the Republic of Indonesia, 2023). Meanwhile, based on data from the Maternal Perinatal Death Notification (MPDN) dated January 26, 2024, the top three causes of infant mortality are respiratory and

heart abnormalities (31.8%), low birth weight and prematurity (24.4%), and infections (11.3%), with the highest location of death being in hospitals (96.8%) (Caron & Markusen, 2023).

Based on data from the Gorontalo Provincial Health Office in 2023, the number of low birth weight babies was 1,285 out of 18,724 births. Meanwhile, the number of newborn deaths was 127 cases, with the highest cause of death being low birth weight, accounting for 46 cases. In Gorontalo Province, Bone Bolango ranks second in neonatal mortality cases with 23 deaths per 1,000 live births, following Gorontalo Utara District, which ranks first with 32 deaths per 1,000 live births. LBW is the leading cause of newborn deaths. In Bone Bolango District itself, Toto Kabila Hospital ranks first with 205 LBW cases in 2023, followed by Kabila Health Center, Toto Utara Health Center, and Bone Health Center, each with 14 LBW cases.

Low Birth Weight (LBW) refers to a baby with a birth weight of less than 2500 grams regardless of gestational age, with birth weight being the weight measured 1 (one) hour after birth (Suryani, 2020). LBW is caused by several factors, including the mother's age during pregnancy, primigravida, the mother's gestational age at delivery, anemia in pregnant women, intrauterine growth restriction, and the number of antenatal care (ANC) visits. Among these causal factors, the incidence of LBW is more likely to occur in first pregnancies or primigravida (Suryani, 2020).

Based on the results of research conducted by Anggun et al. (2022), which states that there is a significant relationship between young primigravida and the incidence of LBW. Research by Sholiha & Sumarmi, (2016) states that primigravida mothers are not a factor in LBW, but there is a relationship between the age of primigravida mothers and the incidence of LBW. Other research conducted by Biyang et al. (2024) noted that out of 877 births analyzed, the prevalence of LBW in Franceville, Southeast Gabon, was 8.4%, and factors associated with an increased risk of LBW included primigravida women, primipara women, and women with a gestational age of <37 weeks, women with <2 antenatal visits, and women who underwent a cesarean section.

Based on initial data observations obtained in the NICU room at Toto Kabila Regional General Hospital, the number of low birth weight (LBW) infants admitted between January and December 2023 was 205 out of 617 total births at Toto Kabila General Hospital, representing 33.23% of LBW infants. Based on initial observations in July 2024, there were 3 out of 7 LBW infants being treated in the NICU in July In 2024, these LBW infants were born to primigravida mothers. From January to September 2024, 13 out of 19 total infant deaths were caused by LBW, and among them, 3 LBW infants from primigravida mothers died. According to an interview with the Head of the NICU, BBLR is also the top cause among the 10 main diseases of newborns in the NICU at Toto Kabila General Hospital, and the leading cause of newborn deaths at Toto Kabila Hospital, with 13 deaths attributed to BBLR, while neonatal asphyxia ranks second with 7 deaths.

Based on this background, the researcher was very interested in conducting research on the relationship between primigravida and low birth weight (LBW) in the NICU of Toto Kabila Regional General Hospital, Bone Bolango Regency.

Method

This study design uses a correlational research design, which examines the relationship between two or more variables without attempting to determine their influence (Rasyid, 2022). In this study, the independent variable is primigravida, and the dependent variable is the incidence of low birth weight (LBW). The population in this study consists of neonates born via cesarean section with a history of primigravida pregnancy in the NICU of Toto Kabila General Hospital from January to December 2024, totaling 158 neonates. The sampling technique used is simple random sampling. Simple random sampling is a technique for selecting samples from a population in a random manner without considering the strata within the population (Sugiyono, 2023). The number of samples required for this study was 113. The statistical test used in this study was the Kolmogorov-Smirnov test.

Results

Characteristics of respondents

The characteristics of respondents in this study included occupation, highest level of education, and gender of the newborn. Each characteristic of respondents in this research is presented in tabular form as follows :

Table 1

Characteristic	Category	N	%
Occupation	Civil Servant	2	1.8
	Housewife	97	85.8
	Contract Employee	7	6.2
	Private Sector	7	6.2
Education Level	Elementary School	15	13.3
	Junior High School	13	11.5
	Senior High School	50	44.2
	Vocational High School	15	13.3
	Bachelor's Degree	20	17.7
Neonatal Gender	Male	62	54.9
	Female	51	45.1
Primigravida Category	Young Primigravida	22	19.5
	Primigravida of Reproductive Age	88	77.9
	Advanced-Age Primigravida	3	2.7
Birth Weight Category	Low Birth Weight (LBW)	50	44.2
	Normal Birth Weight	63	55.8
Total Respondents		113	100

The majority of respondents were housewives (n = 97; 85.8%), with civil servants comprising only 1.8% (n = 2) of the sample. This indicates that the study population predominantly comes from non-governmental, domestic backgrounds. In terms of education, most participants had completed senior high school (n = 50; 44.2%), followed by those holding a bachelor's degree (n = 20; 17.7%). Respondents with lower educational attainment (elementary and junior high school) together accounted for less than one-third of the sample, suggesting a relatively well-educated cohort. Regarding neonatal gender, male infants were slightly more prevalent (n

= 62; 54.9%) than female infants (n = 51; 45.1%), reflecting a modest male predominance in this neonatal population. Analysis of primigravida status showed that most mothers were first-time pregnant within the healthy reproductive age range (n = 88; 77.9%), whereas those classified as advanced-age primigravida were rare (n = 3; 2.7%). Finally, 55.8% of neonates (n = 63) were born with normal birth weight, while 44.2% (n = 50) were categorized as low birth weight. Overall, these findings characterise a cohort of predominantly educated, housewife mothers experiencing generally favourable neonatal outcomes.

Bivariate analysis

Bivariate Analysis of the Relationship between Primigravida and Low Birth Weight (LBW) in the NICU of Toto Kabila Regional General Hospital, Bone Bolango Regency. The results of the analysis can be seen in the following table :

Table 2

Primigravida Category	**BBLR Category**				**Total**		***P-value***
	BBLR		**Not BBLR**				
	N	%	N	%	N	%	
Young Primigravida	15	13.3	7	6.2	22	19.5	0.273
Primigravida of Reproductive Age	32	28.3	56	49.6	88	77.9	
Primigravida of Advanced Age	3	2.6	0	0	3	2.6	
Total	50	44.2	63	55.8	113	100	

Based on the research results, a total of 113 respondents were obtained, of which 22 respondents with a history of young primigravida had 15 respondents (13.3%) with LBW and 7 respondents (6.2%) without LBW. Among the 88 respondents with a history of primigravida at a healthy reproductive age, 32 respondents (28.3%) had LBW and 56 respondents (49.6%) did not have LBW. Among the 3 respondents with a history of advanced primigravida, 3 respondents (2.6%) had LBW. The results of the Kolmogorov-Smirnov statistical test yielded a p-value of 0.273 > 0.05. Therefore, the conclusion is that H_a is rejected and H_0 is accepted, meaning there is no association between primigravida status and LBW incidence in the NICU ward of Toto Kabila General Hospital, Bone Bolango District.

Discussion

a. History of Primigravida in the NICU Room of Toto Kabila Regional General Hospital, Bone Bolango Regency

The results of the study showed that out of 113 respondents, there were 22 (19.5%) mothers with a history of young primigravida, 88 respondents (77.9%) mothers with a history of primigravida of healthy reproductive age, and 3 respondents (2.7%) mothers with a history of old primigravida. Based on the research findings, it was evident that the majority of mothers in the healthy reproductive age primigravida category numbered 88 respondents (77.9%). This is evident from the available data, which shows that the age of mothers with their first pregnancy most frequently falls between 20 and 35 years old.

According to Qarimah's theory (2020), the age range of 20-35 years is considered to pose a high risk during pregnancy and childbirth, as at this age, the uterus is ready to receive a

pregnancy, the mother's mental state is mature, and she has the ability to care for the baby and herself.

This aligns with research by Rangkuti & Harahap (2020), which found that out of 29 respondents aged 20-35 years, they had low-risk pregnancies, and it was concluded that there is a relationship between age and high-risk pregnancy. The better and more mature the mother's age (20-35 years) during pregnancy, the lower the likelihood of high-risk pregnancy for the mother. A mother's age is related to her reproductive organs. The healthy and safe reproductive age is between 20 and 35 years old.

The study also showed that 22 respondents (19.5%) had a history of young primigravida. Based on the available data, the age of mothers with young primigravida ranges from 15 to 19 years old.

According to the theory by Pratiwi et al. (2024), in young primigravida pregnancies, the pelvis has not yet developed optimally and the mental condition is not yet ready to face pregnancy and fulfill the role of a mother. The recommended age for postponing marriage and pregnancy is under 20 years old. There are many factors that influence young pregnant adolescents, who subsequently give birth at a young age, including readiness to accept pregnancy, readiness as a mother, anxiety, fear, physiological changes, emotional changes, concerns, family support roles, and socioeconomic factors.

This is in line with the results of a study by Qarimah (2020), entitled Characteristics of Young Primigravida Women and Their Delivery Outcomes at RSIA Siti Khadijah 1 Makassar, which showed that of the 100 samples analyzed, 72 (72%) were young primigravida women in the 18-19 age group. Young primigravida women under the age of 20 have risks such as miscarriage, premature birth, low birth weight, congenital abnormalities, preeclampsia, bleeding, susceptibility to infection, anemia, cervical cancer, vesicovaginal fistula, retrovaginal fistula, pregnancy poisoning (gestosis), and maternal mortality.

Other research findings indicate that the category of older primigravida comprised 3 respondents (2.7%). Based on available data, the age of mothers in the older primigravida category ranges from 36 to 40 years old.

Pregnant women over 35 years old have a higher mortality rate compared to those aged 20–34 years, with those aged 35–39 years being 2.5 times more likely to experience pregnancy-related mortality and those aged 40 years and older being 5.3 times more likely. Women aged 35 years also experience a decline in reproductive system functions, leading to disorders or the onset of chronic diseases and other conditions that exacerbate the severity of the disease (Agustina et al., 2023).

Women over 35 years of age, although mentally and socioeconomically more stable, have physical and reproductive systems that have already begun to decline (Yulianti & Hasanah, 2024). Maternal health issues during pregnancy, such as placental abnormalities, infections, hypertension, and other conditions, can result in inadequate nutrient intake for the fetus, leading to growth disorders during pregnancy, including an increased risk of giving birth to low birth weight (LBW) and premature infants (Alamsyah, 2023).

This aligns with research by Syafira (2021), which found a p-value of 0.005 (≤ 0.05) using a chi-square statistical test, indicating a significant association between hypertension during pregnancy and the occurrence of LBW. The OR of 5.550 indicates that pregnant women with hypertension have a fivefold higher risk of giving birth to LBW infants compared to those without hypertension. This is because hypertension during pregnancy requires special management as it can reduce blood flow to the placenta, affecting oxygen and nutrient supply to the baby. This can slow fetal growth and increase the risk during childbirth.

According to the researchers' assumptions, primigravida refers to the first pregnancy anticipated by a married couple, where the pregnancy may or may not be high-risk depending on the mother's age. The optimal age for a first pregnancy is during the healthy reproductive years (20-35 years old), as mothers are in excellent physical and mental condition during this period for the healthy development of the fetus. However, primigravida becomes risky if the mother is under 20 years old, as the uterus is not yet

mature enough for fetal growth and development. Similarly, being over 35 years old also carries various risks of pregnancy complications.

b. Incidence of LBW in the NICU Room of Toto Kabila Regional General Hospital, Bone Bolango Regency

The results of the study showed that out of 113 respondents, there were 63 cases of LBW (55.8%) and 50 cases of non-LBW (44.2%). Based on these results, it can be concluded that the majority of neonates were classified as LBW, with 63 respondents (55.8%). This indicates that most respondents were LBW with a birth weight (BW) of < 2500 grams.

According to the theory of Yulianti & Hasanah (2024), low birth weight (LBW) infants are newborns who weigh < 2,500 grams at birth, regardless of gestational age. LBW infants are at high risk of illness, organ failure, and even death. According to Maternity et al. (2018), LBW infants are high-risk neonates, and high-risk infants require close monitoring by experienced doctors and nurses.

This aligns with the findings of Astuti (2018), who classified LBW infants based on their life expectancy, with the majority falling into the LBW category (311 respondents, 90.9%), the very low birth weight (VLBW) category (17 respondents, 5.0%), and a small proportion in the extremely low birth weight (ELBW) category (14 respondents, 4.1%). The risk factors contributing to mothers giving birth to LBW infants include maternal age, education level, occupation, parity, inter-pregnancy interval, anemia, preeclampsia/eclampsia, KPD, hypertension, and a history of LBW.

Based on educational characteristics, the majority of respondents had a high school education (50 respondents, 44.2%), while a small proportion had a junior high school education (13 respondents, 11.5%). Meanwhile, based on occupation, the majority of respondents were housewives (97 respondents, 85.8%), while a small number were civil servants (2 respondents, 1.8%).

On the other hand, according to the results of the respondent characteristics, LBW occurred more frequently in male neonates, with 62 (54.9%) compared to female neonates, with 51 respondents (45.1%). This indicates that male neonates are more likely to experience LBW than female neonates.

This aligns with the findings of Gemilastari et al. (2024), who reported that 65.7% of infants with LBW were male, while the remaining 34.3% were female. In this context, males have a higher likelihood of experiencing LBW compared to females, due to factors such as genetics, maternal nutrition during pregnancy, and maternal stress levels during pregnancy.

The study also found that 50 respondents (44.2%) were categorized as non-LBW. This means that 50 respondents had a birth weight of sufficient weight (>2500 g).

According to Murniati's theory (2023), neonates with adequate birth weight are those with a birth weight between 2500 and 4000 grams, while neonates with high birth weight have a birth weight exceeding 4000 grams. Meanwhile, according to Dewi's theory (2024), to ensure normal birth weight, early prediction of fetal weight during pregnancy is necessary, if needed even before conception (pre-pregnancy), and adequate nutrient intake is essential. Adequate and sufficient nutrition for pregnant women is crucial to prevent fetal growth restrictions and enable mothers to give birth to babies with normal birth weight.

This aligns with research by Ferinawati & Sari (2020), which showed that the majority of respondents (73 respondents, or 86%) did not experience LBW. Most respondents with non-LBW babies were within the normal age range or not in the high-risk age group (20–35 years).

According to the researchers' assumptions, LBW babies are at high risk of disease, organ failure, and even death, so they need close monitoring by medical staff and parents. LBW can be prevented as early as possible by paying attention to the risk factors.

c. Relationship between Primigravida and Low Birth Weight (LBW) Incidence in the NICU Room of Toto Kabila Regional General Hospital, Bone Bolango Regency

The results of the statistical test analysis using the alternative Kolmogorov-smirnov test with a p-value of 0.273> 0.05. So it can be concluded that Ha is rejected and H0 is accepted, meaning that there is no relationship between primigravida and the incidence of low birth weight (LBW) in the NICU room at Toto Kabila Hospital, Bone Bolango Regency. The results showed that the results of a total of 113 respondents, where out of 22 respondents with a history of young primigravida there were 15 respondents (13.3%) with LBW incidence and 7 respondents (6.2%) with non LBW incidence, out of 88 respondents with a history of primigravida of healthy reproductive age there were 32 respondents (28.3%) with LBW incidence and 56 respondents (49.6%) with non LBW incidence, and out of 3 respondents with a history of old primigravida there were 3 respondents (2.6%) with LBW incidence.

This is in line with research by Sharon, (2022) which shows that the significance value of the relationship between maternal age and LBW is p = 0.193, which means that the relationship between the age of pregnant women and the incidence of LBW is not significant (p>0.05). This result may be due to several things, including the small number of research samples and the number of respondents who gave birth to LBW with the age of risk too young (<20 years) and the risk of too old (>35 years) is less than respondents of productive age (20-35 years).

In his study, it was found that most primigravida mothers belonged to the healthy reproductive age group (20-35 years), but still gave birth to LBW. This means that productive age does not guarantee a healthy or successful pregnancy or pregnancy outcome. There are various other factors that may affect productive-age mothers giving birth to LBW. These factors include the level of physical burden due to the mother's work, which the author did not study in this study, the lack of frequency of ANC visits, economic problems, and the mother's nutritional intake during pregnancy, which may not be fulfilled because during pregnancy the mother's knowledge of nutritional needs is still lacking or it can also be because the mother is more concerned with her taste and favorite food than the food that should be consumed during pregnancy (Sharon Levita, 2022).

This is also in line with research by Isnaini et al. (2021) which shows that from the results of the Chi Square test, the p-value = 0.336 is greater than 0.005, this shows that there is no significant relationship between maternal age and the incidence of LBW at the Manokwari District General Hospital. The Odds Ratio (OR) value = 1.43 (CI95% 0.76 -2.70) so although it does not have a significant relationship, the maternal age factor is not the only cause of maternal LBW with the incidence of low birth weight babies.

In contrast to the results of research by Ferinawati & Sari (2020), where from the results of the chi square test with a confidence level of 95% (α = 0.05). The calculation results show a p value (0.017) < p value (0.05) which means there is a relationship between maternal age and the incidence of LBW. Where according to Suryani's theory (2020), LBW cases are strongly related to the age of the mother during pregnancy, primigravida, gestational age, anemia in pregnant women, growth disorders in the uterus, and the number of ANC visits.

Based on the results of the study in table 4.6, most of the primigravida history of healthy reproductive age with the incidence of LBW was 56 respondents (49.6%). This shows that mothers of healthy reproductive age (20-35 years) are the age of pregnant women with a small risk of LBW.

Where the age of the mother has a great influence on pregnancy and childbirth. The age that does not allow high risks in pregnancy and childbirth is at the age of 20-35 years, because at that age, the uterus is ready to accept pregnancy and the mother is mentally mature, and has the ability to care for the baby and herself (Qarimah, 2020).

This is in line with research by Angga (2021), where the statistical test results obtained a p-value of 0.030 means that there is a significant difference so that there is a relationship between maternal age and LBW. With OR 2 (1.745), pregnant women aged 20-35 years do not give birth to low birth weight babies 2 times compared to mothers who become pregnant at the age of <20 />35 years.

Another parallel study by Rangkuti & Harahap (2020), found that of the 29 respondents who had 20-35 years of age had a low risk pregnancy, and based on the chi square statistical test, it was concluded that there was a relationship between age and high risk pregnancy. The better and more mature the age of the mother in the process of pregnancy, the less likely the possibility of high risk in a mother's pregnancy. Where the age of a mother is related to the female reproductive organs. A healthy and safe reproductive age is at the age of 20-35 years.

The results showed that there were most primigravida mothers of healthy reproductive age who also experienced the incidence of LBW, namely 32 (28.3%) with the characteristics of respondents, namely as many as 15 (13.3%) primigravida mothers with elementary school education and as many as 13 (11.5%) primigravida mothers with junior high school education, which showed that the level of education of primigravida mothers was still at a low level of education, and most of the pregnant women with work as housewives, namely 97 (85.8%).

If someone is less educated, it will hinder the acceptance of new ideas which results in pregnant women being less exposed to knowledge about the process of pregnancy and childbirth (Retna et al. 2022). Meanwhile, according to Walyani (2015), economic, educational, social or other factors are often associated with nutritional limitations during pregnancy. Where nutritional status is an important thing to consider during pregnancy, especially in primigravida pregnancy, because nutritional factors greatly affect the health status of the mother during pregnancy and for fetal growth and development. The relationship between nutrition of pregnant women and fetal well-being is an important thing to note.

In some cases primigravida mothers with healthy reproductive gestational age can have a risk of giving birth to LBW babies, because there are factors that influence primigravida pregnancy, one of which is the health status / disease experienced by pregnant women (Walyani, 2015). In this study, primigravida mothers of healthy reproductive age underwent cesarean section delivery with indications of PER (mild preeclampsia), PEB (severe preeclampsia), mothers with a history of anemia, DM, hypertension.

In addition, there are unexamined factors related to primigravida mothers of healthy reproductive age who experience LBW, namely the number of ANC (Antenatal Care) visits. Where according to Suryani (2020), the impact of the lack of ANC visits can cause a lack of knowledge in pregnant women in maintaining health during pregnancy and fetal growth and development.

This is also in line with the results of research by Yesi (2014), it is concluded that there is a significant relationship between the regularity of pregnancy checks in primigravida mothers with the incidence of low birth weight babies. From the research it can be said that primigravida mothers who do not regularly check their pregnancy are at risk of giving birth to low birth weight babies 6.681 times greater than primigravida mothers who regularly check their pregnancy.

The results showed that young primigravida mothers experienced LBW, namely 15 (13.3%). This shows that some primigravida mothers aged < 20 years gave birth to babies with a body weight < 2,500 gr.

The risk of LBW is higher in mothers aged < 20 years related to the biological condition of the reproductive system. In mothers aged <20 years, the mature state of the reproductive system is considered inadequate to deal with pregnancy (Gemilastari et al., 2024).

According to Walyani's theory (2015), the presence of malnutrition in primigravida pregnant women makes blood volume decrease, blood flow to the uterus and placenta decreases, placenta size decreases and nutrient transfer through the placenta decreases so that the fetus grows slowly or is disturbed (IUGR). Pregnant women who are malnourished tend to give birth prematurely or LBW.

This is in line with the results of research by Anggun et al. (2022), which states that there is a significant relationship between young primigravida and the incidence of LBW with the results of the chi square test (p-value = 0.001) and OR value = 13.533. This is because respondents under the age of 20 tend to be mentally and physically not ready to face pregnancy. Symptoms that often appear during pregnancy in the first trimester, young primigravida mothers tend not to be able to cope well, so that the consumption of nutrients and intake to reach the maximum weight of the fetus in the womb cannot also be maximized, resulting in babies at risk of being born LBW.

Other research results, there are young primigravida mothers with non LBW incidence as many as 7 (6.2%) which shows there is a small proportion of primigravida mothers under the age of 20 years with non LBW incidence. This is supported by the characteristics of respondents, namely most primigravida mothers with high school graduates as many as 50 (44.2%), vocational graduates as many as 15 (13.3%), and S1 graduates as many as 20 (17.7%). Which shows most primigravida mothers with higher education. In addition, some respondents had ASN jobs as many as 2 (1.8%), honorary as many as 7 (6.2%), private as many as 7 (6.2%).

The level of education is closely related to a person's behavior to act or play a role and look for triggers and look for solutions or problem solving in his life. The high level of education of respondents affects the willingness and ability of mothers to seek information related to health problems that may be experienced. Meanwhile, work describes how a person's activities and the level of economic welfare obtained from these activities. Working mothers have a better level of knowledge than non-working mothers. This is because working mothers have the opportunity to interact with each other among their coworkers, so they have the opportunity to get information about their situation (Retna et al., 2022).

Based on the results of the study, there was a history of older primigravida who experienced LBW as many as 3 (2.6%). This means that there is a small proportion of mothers with age > 35 years who give birth to babies with a body weight < 2,500 gr.

In mothers over 35 years old, a decrease in maternal health and egg quality can make them more susceptible to preeclampsia and hypertension associated with pregnancy. This can affect fetal development and increase the likelihood of complications or premature birth resulting in LBW (Gemilastari et al., 2024).

Mothers who are > 35 years old tend to have a higher risk of giving birth to babies with LBW, due to decreased biological and health factors. Complications that occur in older primigravida who have high-risk pregnancies (KRT), where the state of the mother's life and the fetus she is carrying can be threatened and can even result in death, namely chronic hypertension, superimposed hypertension, assisted labor rates and also found intrauterine growth abnormalities and congenital malformations (Sariningsih, 2019).

Based on the analysis of the results of the study, the researcher assumes that the age of pregnant women does not show the level of risk of LBW in primigravida mothers significantly, because age is not one of the factors that cause LBW, but occurs due to several factors, namely the history of the health status / disease of primigravida mothers, educational factors and economic factors, and there are other factors that are not studied, such as pregnancy outside of marriage, ANC visits and nutritional status. So that efforts can be taken to prevent the incidence of LBW in the future, namely comprehensive prevention by starting to pay attention to these various aspects, such as improving the level of maternal health and family economic aspects,

and providing comprehensive education/training. Where the lack of knowledge and experience of the mother can risk complications of pregnancy and the fetus she is carrying. So a mother with a first pregnancy needs to prepare her pregnancy well, namely by increasing knowledge about the pregnancy process and prenatal care.

Conclusion

Based on the results of the study, it was concluded that there was no relationship between primigravida and the incidence of low birth weight (LBW) in the NICU room of RSUD Toto Kabila, Bone Bolango Regency. According to the results of data analysis with the Kolmogorov Swirnov alternative test using the SPSS program, the p-value of 0.273> 0.05 was obtained.

Acknowledgement

The authors would like to thank the respondents and the staff of the NICU room at RSUD Toto Kabila, Bone Bolango Regency.

References

Abubakar, M. L., Us, H., Ismayanty, D., Ernita, Sarliana, Apriyanti, I., Asmanidar, Lubis, R., Fauziandari, E. N., Lontaan, A., Sahalessy, Y., Rahcmawati, N. C., Yauri, I., Danaz, A. F., Astuti, I. G. . K., Nurbaiti, Fijriyah, S., Tempali, S. R., & Fadmiyanor, I. (2024). *Bunga Rampai Asuhan Neonatus dan Bayi* (Rahmawati (ed.)). PT. Media Pustaka Indo.

Agustina, Revinel, Aritonang, J., Pratama, R. M. K., Nurita, S. R., & Nengsih. (2023). *Buku Ajar Asuhan Kebidanan Bayi dan Balita S1 Kebidanan* (T. M. Group (ed.); September). Mahakarya Citra Utama.

Amri, I., Ansariadi, Nur, R., Miranti, Rahma, Harun, H., Zelfianty, & Aulia, U. (2020). Number pregnancy and low birth weight (LBW) babies in Anutapura Hospital in Palu City in 2016. *Enfermería Clínica*, *30*, 219–222. https://doi.org/10.1016/j.enfcli.2019.10.072

Angga Arsesiana. (2021). Analisis Hubungan Usia Ibu Dan Jarak Kehamilan Dengan Kejadian Bayi Berat Lahir Rendah (Bblr) Di Rs Panembahan Senopati Bantul. *Jurnal_Kebidanan*, *11*(1), 592–597.

Anggun, M. S., Riska, H., Hanifa, F., & Ola, S. E. (2022). Hubungan Primigravida Muda , Kekurangan Energi Kronis (KEK) dan Sosial Ekonomi dengan Kejadian Berat Badan Lahir Rendah (BBLR) di Puskesmas Tenjo Tahun 2022. *Jurnal Kebidanan Indonesia*, *02*(November), 300–305.

Astuti. (2018). Gambaran Kejadian Bayi Berat Lahir Rendah Di Rsud Wates Kulon Progo Yogyakarta. *Jurnal Ilmiah Kebidanan Indonesia*, *2*(8), 22–30.

Badan Pusat Statistik Indonesia. (2023). *Sensus Penduduk 2010 - Indonesia*. *09*, 1–44.

Basyiroh, A. N., Lailiyah, S., Studi, P., Masyarakat, K., Ilmu, S., Alam, I., & Airlangga, U. (2022). STUDI LITERATUR (SISTEMATIC REVIEW): HUBUNGAN DUKUNGAN SUAMI DENGAN TINGKAT KECEMASAN IBU PRIMIGRAVIDA TERHADAP PROSES PERSALINAN. *Journal of Community Mental Health and Public Policy*, *2655*, 29–39.

Biyang, Y. V. S., Bisseye, C., Saidou, M., & N´tchoreret, A. (2024). Determinants of low birth weight in Franceville, Southeast Gabon. *Pan African Medical Journal*, *47*(218), 1–9.

Caron, J., & Markusen, J. R. (2023). Laporan Akuntabilitas Kinerja Instansi Pemerintah. *Kementrian Kesahatan Indonesia*, 1–23.

Dewi, R. D. C. (2024). *Komunikasi Digital untuk Kesehatan : Edukasi Whatsapp Bagi Ibu Hamil* (N. Duniawati (ed.)). CV. Adanu Abimata.

Ferinawati, & Sari, S. (2020). Faktor-Faktor Yang Berhubungan Dengan Kejadian BBLR Di Wilayah Kerja Puskesmas Jeumpa Kabupaten Bireuen. *Journal of Healthcare Technology and Medicine*,

6(1), 353–363.

Ferry. (2022). Hubungan Pernikahan Usia Dini Pada Remaja dengan Kejadian BBLR. *Jurnal Ilmu Keperawatan Indonesia*, *3*(2), 111–119.

Gasper, I., Pratiwi, D. S., Metanfanuan, R., Puspitadewi, T. R., Indarsita, D., Papilaya, M. F., Wahyuningsih, Saragih, S. L., Gasma, A., Alow, G. B. H., Rahakbauw, G. Z., Kusmiyati, Priliana, W. K., Tamunu, E. N., Lombogia, M., Mamentu, P., Muaningsih, & Harikedua, V. T. (2024). *Keperawatan Maternitas* (L. O. Alifariki (ed.); I). PT. Media Pustaka Indo.

Gemilastari, R., Zeffira, L., Malik, R., & Tri Septiana, V. (2024). Karakteristik Bayi Dengan Berat Badan Lahir Rendah (BBLR). *Scientific Journal*, *3*(1), 16–26.

Hastanti, H., Febriyana, N., Kedokteran, F., & Airlangga, U. (2019). Women with Primigravida Experience More Anxiety in Pregnancy. *Indonesian Widwifery and Health Sciences Journal*, *3*(2), 167–178.

Isnaini, Y. S., Ida, S., & Pihahey, P. J. (2021). FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN BERAT BADAN LAHIR RENDAH. *Nursing Arts*, *15*(2), 47–55.

Karentina, Y. U. N. (2019). Hubungan Antara Hipertensi Gestasional Dan Usia Ibu Terhadap Bayi Berat Lahir Rendah (BBLR) [Universitas Muhammadiyah Surakarta]. In *Doctoral dissertation, Universitas Muhammadiyah Surakarta*.

Kemenkes. (2023). Survei Kesehatan Indonesia 2023 (SKI). In *Kemenkes*.

Kemenkes RI. (2023). Profil Kesehatan Indo-nesia. In *Pusdatin.Kemenkes.Go.Id*.

Khadijah, S. (2021). Hubungan Dukungan Keluarga terhadap Kecemasan Ibu Hamil Primigravida Trisemester III dalam Menghadapi Persalinan di Wilayah Kerja Klinik Rafifa Desa Cempedak Lobang [Universitas Medan Area]. In *Medan Area University Repository*.

Lubis, H., Syahida, A., & Putri, M. R. (2023). *Asuhan Neonatus, Bayi, dan Balita untuk Mahasiswa Kebidanan* (Yusnaini (ed.)). Zahir Publishing.

Manuaba, I. B. ., Manuaba, I. . C., & Manuaba, I. B. . F. (2007). *Pengantar Kuliah Obstetri* (1st ed.). EGC.

Marmi, & Rahardjo, K. (2015). *Asuhan Neonatus, Bayi, Balita, dan Anak Pra Sekolah* (5th ed.). Pustaka Pelajar.

Maternity, D., Anjani, A. D., & Evrianasari, N. (2018). *Asuhan Kebidanan Neonatus, Bayi, Balita, dan Anak Prasekolah* (P. Christian (ed.); 1st ed.). ANDI.

Menajang, N., Pondaag, L., & Kundre, R. (2017). Hubungan Dukungan Suami Dengan Tingkat Kecemasan Pada Ibu Primigravida Trimester Iii Di Puskesmas Sonder. *Jurnal Keperawatan UNSRAT*, *5*(1), 105173.

Momeni, M., Danaei, M., Kermani, A. J. N., Bakhshandeh, M., Foroodnia, S., Mahmoudabadi, Z., Amirzadeh, R., & Safizadeh, H. (2017). Prevalence and Risk Factors of Low Birth Weight in the Southeast of Iran. *International Journal of Preventive Medicine*, *8*(1), 12–17.

Mulyana, A., Susilawati, E., Fransisca, Y., Marrillyn, Arismawati, Madrapriya, F., Phety, D. T. O., Putranto, A. H., Fajriyah, E., Kurniawan, R., Asri, Y. N., Milasari, L. A., & Sumiati, I. (2024). *Metode Penelitian Kuantitatif* (R. Oktavera & P. N. Fauziah (eds.)). CV. Tohar Media.

Murniati, S. T. K. M. K. . (2023). *Asuhan Kebidanan Masa Nifas dan Bayi Baru Lahir Berbasis Kearifan Lokal* (Y. A. Sari (ed.); I). Adab CV. Adanu Abimata.

Norfai. (2021). *Analisis Data Penelitian (Analisis Univariat, Bivariat, dan Multivariat)* (N. Fahmi (ed.); I). CV. Penerbit Qiara Media.

Nursalam. (2020). *Metodologi Penelitian Ilmu Keperawatan. Pendekatan Praktis* (5th ed.). Salemba

Medika.

Oktarisa, A. (2019). Penerapan Hiperoksigenasi sebagai Evidence Based Nursing Untuk Meningkatkan Saturasi Oksigen Pada Pasien Yang Terpasang Endotracheal Tube. *Riset Media Keperawatan*, *2*(2), 10–14.

Okvitasari, Y., Ruslinawati, Yuniarti, K., & Luhur, R. P. (2024). *Terapi Murrotal Al-Qur'an Terhadap Tingkat Kecemasan Ibu Hamil*. PT. Nasya Expanding Management.

Pratiwi, L., Nawangsari, H., Dianna, Fitriana, D., & Febrianti, R. (2024). *Kehamilan Masa Remaja dan Mengenal Abortus* (H. Wijayanti (ed.)). CV Jejak, Anggota IKAPI.

Qarimah, A. I. (2020). Karateristik Primigravida Muda dan Luaran Persalinannya Di RSIA Siti Khadijah 1 Makassar Periode Januari-Desember Tahun 2019. *Hassanuddin University*, 1–36.

Rajab Muhammad Nur Alamsyah. (2023). Pengendalian Kasus Berat Badan Lahir Rendah (BBBLR) dengan Pendekatan Asset Based Community Development (ABCD) Di Puskesmas Tamangapa Kota Makassar. *Community Medicine and Public Health of Indonesia Journal*, *3*.

Rangkuti, N. A., & Harahap, M. A. (2020). Hubungan Pengetahuan dan Usia Ibu Hamil dengan Kehamilan Risiko Tinggi di Puskesmas Labuhan Rasoki. *Education and Development*, *8*(4), 513–517.

Rasyid, F. (2022). *Metode Penelitian Kualitatif dan Kuantitatif Teori, Metode, dan Praktek* (I). IAIN Kediri Press.

Retna, T., Firnanda, D. A., & Wahyurianto, Y. (2022). Pengetahuan Ibu Hamil Trimester III (Primigravida) Tentang Persiapan Persalinan Di Kecamatan Semanding, Kabupaten Tuban. *Jurnal Keperawatan Widya Gantari Indonesia*, *6*(1), 46–56.

Saparina, T., Yanti, F., & Nangi, M. G. (2020). *Buku Ajar Manajemen Data Menggunakan EpiInfo dan SPSS* (Guepedia (ed.)). Online Publisher Guepedia. Buku ajar manajemen data menggunakan epiinfo dan SPSS

Sari, F. S. (2017). Dukungan Keluarga Dengan Kecemasan Primigravida Menjelang Persalinan Trisemester III. *Jurnal Ipteks Terapan*, *11*(2), 55–64.

Sariningsih, A. N. (2019). Analisis Deskriptif Pemeriksaan Antenatal Care (ANC) pada Ibu Primigravida Trisemester I, II, dan III Di Wilayah Kerja Puskesmas Baturraden II. *Universitas Muhammadiyah Purwokerto*, 37–38.

Sharon Levita, L. A. L. (2022). Hubungan Berbagai Faktor Risiko dengan BBLR di RSU Kota Tangerang Selatan Periode Maret-Oktober 2021. *Jurnal Pendidikan Biologi, Biologi, Dan Ilmu Serumpun*, *9*(2), 418–427.

Sholiha, H., & Sumarmi, S. (2016). Analisis Risiko Kejadian Berat Bayi Lahir Rendah (Bblr) Pada Primigravida. *Media Gizi Indonesia*, *10*(1), 57–63.

Siantar, R. L., & Rostianingsih, D. (2022). *Buku Ajar Asuhan Kebidanan Kegawatdaruratan Maternal dan Neonatal* (T. Ismiati (ed.); I). Penerbit Rena Cipta Mandiri.

Sugiyono. (2023a). *Metode Penelitian Kuantitatif Kualitatif dan R&D* (Sutopo (ed.); 2nd ed.). Alfabeta.

Sugiyono. (2023b). *Statistika untuk Penelitian*. CV ALFABETA.

Sukarni, I. S. (2017). *Patologi : Kehamilan, Persalinan, Nifas, dan Neonatus Risiko Tinggi* (Kedua).

Suryani, E. (2020). *Bayi Berat Lahir Rendah dan Penatalaksanaannya* (I). Strada Press.

Tasya Ivani Syafira. (2021). Hubungan Hipertensi Gestasional Dengan Angka Kejadian Bblr. *Jurnal Medika Hutama*, *03*(01), 1519–1523.

Tondong, H. I., Nurhayati, Husniawati, N., Ina, A. A., Teting, B., Wahyuningrum, E., Widiyastuti, N. E., Purwanto, C. R., Nurfatimah, Ifadah, E., Nurhayati, C., Ramadhan, K., & Indriyati, T. (2024).

Buku Ajar Metodologi Penelitian Bidang Kesehatan (P. I. Daryaswanti (ed.); I). PT. Sonpedia Publishing Indonesia.

Utami, R. A., Piko, S. O., Wicaksono, K. E., Handayani, P. A., Elyta, T., & Agustanti, D. (2024). *Buku Ajar Keperawatan Keluarga II*. Mahakarya Citra Utama.

Walyani, E. S. (2015). *Perawatan Kehamilan & Menyusui Anak Pertama Agar Bayi Lahir dan Tumbuh Sehat* (Mona (ed.); pertama). Pustaka Baru Press.

Wardani, D. K. (2020). *Pengujian Hipotesis (Deskriptif, Komparatif, dan Asosiatif)*. LPPM Universitas KH. A Wahab Hasbullah.

WHO. (2024). *Neonatal Mortality Rate*. The Global Health Observatory.

Yanti, E. M., & Fatmasari, B. D. (2023). *Buku Psikologi Kehamilan, Persalinan, dan Nifas* (M. Nasrudin (ed.)). PT. Nasya Expanding Management.

Yesi, N. M. F. I. (2014). Hubungan Keteraturan Pemeriksaan Kehamilan Pada Ibu Primigravida dengan Angka Kejadian Bayi Berat Lahir Rendah di Puskesmas Kecamatan Pademangan Jakarta Utara Tahun 2010-2014. *Jurnal Medika Malahayati*, *1*(4), 175–184.

Yulianti, M., & Hasanah, P. N. (2024). *Konsep Dasar dan Asuhan Keperawatan Bayi Berat Lahir Rendah* (M. Nasrudin (ed.)). PT. Nasya Expanding Management.